

BRIEFER ARTICLES.

Observations on the new Texas fern *Notholæna Nealleyi* Seaton, as described in "Contributions from the U. S. Herbarium," ii, p. 61, no. 894, June, 1890, and a Mexican fern collected by C. G. Pringle near Gaudalajara in 1888.

The general characters are here shown in parallel columns:

Notholæna Nealleyi Seaton. Type specimens in Nat. Herb.

Plant 6 to 6½ inches tall. Root-stock cespitose (characterized in original description, l. c., as a slender rhizome), crowns thickly clothed with black subulate scales, slightly pectinate; fronds clustered, stipites 1 to 1½ inches long, terete, or nearly so, *black*, clothed at the base with small reddish-brown scales, above with reddish bristly minute scales and hairs extending upward and along the rachises; laminae 4 to 5 inches long, 1½ to 2 inches broad, pinnate, oblong-lanceolate, narrowed both ways, upper surface sparingly sprinkled, lower, as well as the rachises and stipites, thickly coated with more or less deciduous *yellowish-white* ceraceous powder. *Sori brown*, continuous round the slightly recurved unchanged margins.

Notholæna sp.? Pringle's no. 1864, in Herb. G. E. D.

Plant 5 to 14 inches tall. Root-stock cespitose, crowns clothed with black subulate slightly pectinate scales; fronds clustered, stipites 2 to 3 inches long, terete, *brown*, clothed at the base with small reddish-brown scales, above with reddish bristly minute scales and hairs extending upward and along the rachises; laminae 3 to 11 inches long, 1 to 2¼ inches broad, bi- to tripinnate, oblong-lanceolate, narrowed both ways, upper surface copiously sprinkled, lower, as well as the rachises and stipites thickly coated with *white* ceraceous powder, more or less deciduous; *sori black*, continuous round the slightly recurved unchanged margins.

Special characters noted on comparing two fronds of corresponding size and appearance in age and natural development.

N. Nealleyi Seaton. Frond pinnate, pinnæ sessile, or lowermost sub-sessile, bipinnatifid, or partially pinnated at the base, pinnules deeply lobed, ultimate lobes the largest; texture subcoriaceous, veins visible on looking through toward the light. Stipes and main rachis *black*, secondary rachises blackish beneath, green above and channelled, wing-margined, wings connecting the pinnules; lowermost pinnæ gone but probably somewhat shorter than those above.

Notholæna sp.? Pringle's No. 1864. Frond distinctly bipinnate nearly to the top, uppermost pinnæ sub-sessile, lowermost short stalked, pinnules distinct, sessile, deeply lobed and nearly pinnate at the base, ultimate segments the smallest, texture coriaceous, veins obscure. Stipes and main rachis *brownish*, not wing-margined nor channelled above, lowermost pinnæ shorter than those above.

In summing up conclusions from the foregoing observations it appears to be extremely unsafe to separate the two ferns into distinct

species with the present material in hand. The particular differences noted seem to be only of varietal significance and do not seem to warrant disposing of the Mexican fern in any other way than by referring it to the Texan fern as a variety. I therefore name it var. *Mexicana* and have ticketed Mr. Pringle's fern as *Notholæna Nealleyi* Seaton, var. *Mexicana*.

My thanks are due to Dr. Geo. Vasey and Mr. J. N. Rose, of the National Herbarium, for their kindness and courtesy in sending to me for examination the typical specimens of *Notholæna Nealleyi*.—GEO. E. DAVENPORT, *Medford, Mass.*, December, 1890.

Sarcodes sanguinea.—That this plant is not a root-parasite but a saprophyte, was demonstrated by myself, Dr. Chas. Schäffer, and Col. Hutchings of Yosemite, in 1883, an account of which was the subject of one of my "Contributions." With pick and shovel we carefully surrounded and undermined some plants, and then removed the earth particle by particle from the ball; there was no attachment to host roots, nor were there any roots of any kind in the mass of earth to which they could have been attached. Fearing that the dryish earth might break off some thready matters without our perceiving them, we soaked some of these balls in a pool of water allowing the earth to gradually float away as muddy water, with the same result. But, and this is the point I want to make now, neither was there any decaying vegetable matter such as we usually find around the roots of ordinary saprophytes. After satisfying ourselves that the plant was not a parasite, and that it must be a saprophyte, one was selected in what one might call almost pure sand, but no trace of vegetable matter was apparent to the unaided vision. The plant seems scarcely symbiotic in the proper sense of the term. My own conclusions were that in some unexplained way, the plant was able to draw nitrogenous and other material from the earth without the aid of organs necessary to this end in most cases. What Dr. Oliver calls roots we did not find,—nothing but a spongy looking or coral-like mass of cellular tissue.

Since the pretty speculation regarding the nitrogenic agency of fungi in preparing food for saprophytic plants has been developed, we can detect some of this character by olfactory evidence, which I have found very satisfactory in most cases. This speculation had not been laid before us in 1883, or it would have been tested then,—but the odor of fungi, if any there were, must have been very slight or it would have been noted.—THOMAS MEEHAN, *Philadelphia*.